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ABSTRACT

As part of a series of reports dealing with racial distribution in San Francisco schools, this memorandum presents the rationale for adopting patterns of educational reorganization as an accompaniment to efforts to improve racial balance. Reasons are presented for adopting feeder patterns as students progress from the elementary to secondary levels. Advantages of feeder patterns cited include the ability to predict class size, educational continuity, stability in class composition, and the decentralization of school administration along vertical lines. Advantages of grade level reorganization are considered, including the achievement of higher educational effectiveness at equal or lower costs. Educational parks are discussed briefly, although it is indicated that this concept has only limited application in San Francisco. Finally, the key findings of an Office of Education survey on the equality of educational opportunity are interpreted. Student achievement and conditions that appear to be related to it are examined in depth. Appended to the document are definitions of terms, as well as a table indicating the average verbal achievement scores of black and white grade 12 students. (Author/EB)

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STANFORD RESEARCH INSTITUTE
Menlo Park, California

April 21, 1967

Research Memorandum No. 4

EDUCATIONAL ORGANIZATION FOR DESEGREGATION

Prepared for:

SAN FRANCISCO UNIFIED SCHOOL DISTRICT

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FOREWORD

In September 1966, the San Francisco Unified School District contracted with Stanford Research Institute to study alternative means by which racial imbalance in San Francisco's public schools might be diminished. The following Research Memorandum is one of a series in which the Institute is presenting its findings.

The objectives of the study provide that the Institute form and evaluate several alternative patterns of pupil attendance that, if adopted, will result in the racial composition of individual schools more nearly reflecting the citywide racial distribution. The Institute also will evaluate the cost-effectiveness of the alternatives.

This Research Memorandum presents the rationale for adopting patterns of educational reorganization as an accompaniment to efforts to improve racial balance. The overall context for improved racial balance is summarized in a separate memorandum in this series, "Dimensions of Equality of Educational Opportunity." The current memorandum focuses on certain educational questions that should be considered if any alternative attendance plan that will be presented in the final report of this series is selected for implementation.

This memorandum first covers the rationale for adopting feeder attendance patterns as students progress from schools serving one group of grades to those serving the next group of grades. Next, it treats the rationale for several possibilities for grade level reorganization. The intermediate and middle school concepts are discussed briefly.

A third section covers educational parks briefly, even though the research team believes that this concept has only limited application in San Francisco.

The final topic to be treated is a detailed interpretation of key findings of the U.S. Office of Education in its survey, Equality of Educational Opportunity. Student achievement (and the conditions that appear to be related to it) is the factor examined in depth. Although achievement is certainly not the sole criterion of educational effectiveness, the USOE survey uncovered some rather unexpected findings on the relationship between achievement and educational conditions.

Appendix A contains definitions of terms used in this and subsequent memoranda. Appendix B presents working papers in which achievement differentials were calculated.

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SUMMARY

Feeder attendance patterns offer a potential for (1) improving educational continuity, (2) improving racial balance at upper grades, (3) stabilizing interstudent relationships, and (4) decentralizing administration.

Schools that are reorganized to concentrate on a few grades can provide educational advantages in (1) deploying teachers in their fields of strength, (2) grouping students flexibly to individualize the challenge for each student, (3) providing specialized facilities, and (4) improving educational supervision.

Educational parks are being planned for several school districts, but they appear to have only limited applicability to San Francisco unless major new financing is planned.

New evidence on the relationship between student achievement and educational conditions has become available through studies sponsored by the U.S. Office of Education and the U.S. Commission on Civil Rights. These studies show that Negro students who attend desegregated schools score significantly higher in achievement than do Negro students who attend segregated schools. In these comparisons all other conditions are held constant. The studies further show that white student achievement is relatively insensitive to racial composition of the classroom.

These findings suggest the following operational guidelines, assuming that the objective is to obtain the maximum achievement of all students:

1. Adopt attendance policies that create as much socioeconomic balance and racial balance among schools as possible.

2. Where imbalance still exists, assign the highest quality teachers to schools enrolling a large proportion of minority students who come from families with average low education. Teachers so selected should be those with training and motivation appropriate for these assignments.

ADVANTAGES OF FEEDER PATTERNS

In most of the alternative pupil assignment proposals that will be presented in the final memorandum of this series, upper grade schools are fed by specified schools serving lower grades. The exception to feeder attendance would be students who qualify for admission to specialized senior high schools, such as the academic school (Lowell) or the vocational schools.

The feeder pattern is a partial departure from present practice in San Francisco, which now sets attendance boundaries for the three levels somewhat independently of one another. However, the equivalent of feeder arrangements is probably already in effect for a majority of students, even under present attendance policies. Under the proposed arrangement, feeder rules would be more explicit, although some exceptions will be required under any plan. The reasons for adopting feeder concepts follow.

Predicting Class Size and Composition

Feeder attendance rules allow school officials to predict the class size and composition of a given school for several years ahead. Further, by combining two or more feeder schools whose compositions by race or socioeconomic background are complementary, school officials can diminish imbalance.

Educational Continuity

Feeder plans assure the opportunity for effectiveness in articulation. In other words, students experience educational continuity in moving from one level to another. When a junior high school, for example, is always fed by the same five elementary schools, teachers and curriculum staff can coordinate educational offerings at the two levels in such a way that learning will be cumulative for students who progress from one level to the next.

Continuity is provided for to a considerable extent under the present organization. However, since the schools are not now decentralized into vertical families of schools linked by feeder patterns, and attendance zones for the two levels are not coterminous, it is difficult to establish intimate articulation arrangements.

The need for effective articulation across grade level boundaries becomes increasingly pressing as new developments in curricula, such as the new math and the foreign language training required by the state are

introduced in elementary schools. Good articulation is also important in another need, that of improved student counseling, which again requires continuity in approach, records, and follow-through. Such continuity can best be achieved when the faculties and staffs of a limited number of schools learn to know one another and to work together.

It is also important to encourage efforts by students to improve articulation, which can be particularly important when new feeder patterns are going into effect and when racial balance is changing. The principal of San Francisco's Woodrow Wilson High School, for example, relates how the volunteer efforts of students to visit feeder junior high schools and meet the graduating students helped considerably in making an effective transition when a new racial composition developed at that high school.

Stability and Continuity in Class Composition

Feeder plans provide stability to student interpersonal relationships. The graduates of one school all attend the next school specified in the feeder tree. Since schools are larger at higher grade levels, the graduates of at least two schools enter together, providing an opportunity both for continuity with former classmates and for new relationships with graduates from the other feeder school(s). Similarly, the feeder arrangement assures that members of one family will always be able to attend the same series of schools.

Decentralized Administration

The feeder arrangement lends itself to the possibility of reorganizing and decentralizing educational administration along vertical lines. Each of the eight comprehensive senior high schools (in 1971), fed by its two (generally) junior high schools and their eight to fifteen elementary schools, could be an organizational subunit within the San Francisco Unified School District. Or, perhaps two senior high schools, with all their feeder schools, could be such a subunit. This pattern of decentralization might be more effective than other alternatives, especially the current system, which is divided horizontally according to elementary, junior, and senior high school lines.

The full potential inherent in feeder attendance and decentralized organization along unified subdistrict lines can be realized by treating each subdistrict as a closely knit complex. This complex provides a considerable amount of interchange among member schools and across grade levels of specialized teachers, counselors, other educational staff, and leaders of student organizations. These interactions can reinforce favorable factors in the climate for learning and achievement.

Some of the potential advantages of several K-12 subsystems in San Francisco are:

1. Continuity of educational offerings achieved by a family of schools working together as a truly unified (K-12) subdistrict.

2. Decentralization of the educational administration into manageable units of 10,000 to 15,000 students K-12, or multiples thereof. Thus there could be eight, four, or fewer such subunits for the district as a whole.

3. The opportunity for students, parents, and community groups to build a community identity with the subsystem of schools serving them. The entire city as a system is too unwieldy to achieve this kind of clientele. Most large cities are seeking some logical way of decentralizing. The unified subdistrict is a way to satisfy this need at the same time that it is promoting educational advancement and desegregation.

ADVANTAGES OF GRADE LEVEL REORGANIZATION

Several alternative pupil assignment patterns call for a modification in grade level organization. One plan would divide present elementary schools into two types, those serving grades K (kindergarten) and 1-3 and those serving K and 4-6. (Kindergartens were assumed to be left in every elementary school to minimize distance to school for five-year- olds.) Another plan calls for reorganization into three types of schools--those serving grades K to 4, and 5 to 8, and 9 to 12, respectively.

Basically, there are two reasons for converting elementary schools either into a primary school (K-3), an intermediate school (K, 4-6), or a middle school (5-8). The first is to draw from a larger attendance area, which in some circumstances helps achieve racial balance. The second reason is that educational advantages can also be gained.

By concentrating fewer grade levels in any one school and more classes at a given grade level in that school, it becomes possible to achieve higher educational effectiveness at equal or lower cost for the following reasons:

1. More opportunities exist to deploy teachers in their fields of concentration and interest, providing greater depth in teaching and increased pupil motivation. These potentials can be realized through partial departmentalization at the upper elementary grades, thus anticipating the departmentalized arrangements found at junior and senior high school levels. Partial departmentalization is designed to retain the advantages of the self-contained classroom by associating a home room teacher with a specific class for continuity, counseling, and that part of the instructional program in which the teacher is most proficient.

2. The larger number of students at a given grade level permits greater flexibility in grouping pupils and in scheduling classes for instructional purposes to individualize the challenge for each student.

3. The concentration by grade level makes feasible an increased amount of the specialized facilities and equipment being used at elementary grade levels--e.g., science, physical education, and art.

4. Similarly, it becomes feasible to concentrate efforts of specialized teachers of art, reading improvement, music, foreign language, educationally handicapped, and so forth.

5. The arrangement facilitates the introduction of new approaches of nongrading and team teaching patterns. Nongrading, according to Prof. John I. Goodlad of UCLA, in the U.S. Commission on Civil Rights report, is designed to help "each student to work at his optimal level of readiness in each field of endeavor without stigma and without enforced separation from his natural (age-group) peers." He also states that "the school milieu should provide for diagnosis of the readiness and learning potential of each child."* Concentrating a few traditional grade levels in a given facility can permit the specialization of faculty and offerings that are inherent in nongraded team teaching approaches. The transition from one school to another must of course be allowed for with appropriate arrangements for articulation.

6. Reducing the grade range of supervisorial responsibilities for each principal helps the administrator to be more efficient in his job of upgrading instruction.

7. Starting together in a new school each three years increases the students' chances that new social relationships will form naturally. With a six-grade cycle as at present, student social groups often become too tightly knit to admit newcomers, particularly those of another race.

8. Behavior and discipline problems can be reduced in contrast to dealing with these problems where there is a wide age span of students attending the same facility.

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* See Racial Isolation in the Public Schools, Vol. 2, Appendices, U.S. Commission on Civil Rights, p. 264.

EDUCATIONAL PARKS AND DESEGREGATION

Recent educational literature refers frequently to the educational park as a means of assisting desegregation at the same time that it is achieving other educational improvements. Only one alternative plan to be advanced in the final memorandum of this series incorporates the concepts of the educational park, and then on a modest basis. The principal reasons for not specifying the park concept more widely are as follows:

1. Total enrollment in San Francisco is predicted to decline slightly during the next five to ten years, eliminating the need for a large net addition to facility capacity.

2. After the additions, replacements, and modifications are made with funds voted in the bond issue of 1964, the quality of facilities in the system will be reasonably satisfactory.

3. Existing facilities and sites tend to be of medium to small unit capacity; thus, they do not lend themselves to development as parks.

4. It was assumed that solutions for racial imbalance should minimize facility changes for both cost and time reasons.

Even though there is no proposal made in the study that the park concept be applied to any great degree, some information about this approach is summarized here.

An educational park is generally defined as a central cluster of educational facilities on a campus large enough to draw attendance from a heterogeneous grouping of neighborhoods and ethnic groups. Some of the park proposals, notably those of East Orange, New Jersey, and of Nova schools in Ft. Lauderdale, Florida, would consolidate a range of grade levels on a single campus. Others, like the plans in Syracuse, New York; Pittsburgh, Pennsylvania; and the existing 9th grade school in Berkeley, California, concentrate on a narrow span of grade levels but draw from a large attendance zone.

In some cases, the park has been distinguished from a conventional school facility not just by size but also by collaboration among several jurisdictions, in addition to school districts, such as cities and recreation districts. The attraction here is that of joint use of sites or facilities that a single jurisdiction would find difficult to justify for use by itself.

Enrollments in a park or center can range from a little more than conventional high school enrollment of 2,000 students to 30,000 or even more. Generally, plans call for decentralizing activities within a campus so that each child is enrolled in a school-within-a-school of perhaps 1,000 or less enrollment. This plan permits the individual student to identify with his fellow students and his faculty, yet it also allows him to benefit from central core facilities serving all such subschools. Central facilities can include auditoriums, libraries, medical services, highly specialized laboratories, and specialized athletic facilities.

STUDENT ACHIEVEMENT AND RACIAL BALANCE

Evidence supporting the educational value of desegregation is contained in the 1967 report, Racial Isolation in the Public Schools, prepared by the U.S. Commission on Civil Rights. The relevance of that evidence to policy issues faced by the San Francisco Board of Education is the subject of this chapter.

The Commission's basic data came from the USOE survey Equality of Educational Opportunity, hereafter referred to as the Coleman Report, after Prof. James Coleman of Johns Hopkins University who directed the survey. The Coleman Report obtained information on 600,000 students in a sample of over 4,000 schools in grades 1, 3, 6, 9, and 12. The Commission further analyzed these data to see if the achievement and aspirations of Negro children are related to the racial composition of schools.

The data gathered by the Coleman survey are sufficiently detailed that variations observed in student achievement can be related to a wide variety of different educational conditions. For example, the survey shows that when other factors are held constant, there is little correlation between student achievement and the quality of school facilities. Similarly, factors such as comprehensiveness of curricula, laboratories, library volumes, and certain extracurricular activities have only minor relationships to student achievement. Even pupil-teacher ratio is not measurably related to achievement, at least not within the range of pupil-teacher ratios found in the sample.*

The survey showed that, on the other hand; "Attributes of other students account for far more variation in the achievement of minority group children than do attributes of school facilities and slightly more than do attributes of staff."† Of the attributes of other students in the school, the Coleman data show that racial composition of the classroom accounts for the greatest variation in achievement of Negro students. Much of the rationale for ending racial isolation in public schools may be derived from only two of the hundreds of tables that appear in the

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* The absence of correlation between achievement and "independent variables" such as school facilities and curricula possibly can be attributed to restriction in range of the independent variables. That is, some schools in the sample would have had to show dramatically lower or higher values for the independent variable for correlations to have emerged.

† See James S. Coleman, et al., Equality of Educational Opportunity, Office of Education, U.S. Department of Health, Education, and Welfare, 1966, p. 302.

Commission and Coleman reports. The tables follow; one shows the achievement of Negro students and the other that of white students. In both cases students are in the 12th grade in schools that are in the Metropolitan Northeast.

The achievement measure is verbal ability, which the authors of the Coleman report believe is the best measure of student effectiveness. Verbal facility is vital to almost all intellectual attainment and is perhaps the most important single proficiency needed in finding and keeping a job. Verbal achievement is expressed in raw scores and in grade level equivalents in the following discussion. Since comparisons, not absolute values, are the essence of the following discussion, the technical steps of transforming from raw scores to grade level equivalents are not described here.*

Factors Related to Achievement of Negro Students

Table 1 is reproduced from the Commission report and deals with the achievement of the 12th grade Negro students. The left column shows that the sample of students being compared is restricted to those whose parents' educational achievement was less than high school graduate.† This is a large group nationally, and students of this background are frequently found in disadvantaged areas. If conditions can be revealed in which these children can achieve well, much progress in equality of educational opportunity can be achieved.

In the second column the Negro students have been divided into those attending schools where the average education of all parents is below that of high school graduate and those attending schools where the average parent is a high school graduate or above.

Then each combination was further divided into those attending schools where the teachers were of high quality and where they were of low quality. The teacher quality index was derived empirically for other student populations by relating student achievement to many teacher attributes. Those attributes that the Commission report found to be important in teacher quality were:

1. A teacher's average educational preparation (professional training).

2. The percentage of teachers in the school majoring in an academic subject.

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* See U.S. Commission on Civil Rights report, Vol. 2, op. cit., p. 36.

† Elsewhere in the Commission report, similar data are presented on 12th grade Negro students whose parents had high school education or more. The total number of 12th grade Negro students in the sample in Table 1 was 1,416 students (calculated from Table 7.16 of Appendix II, in the Commission report, p. 119).

Table 1

VERBAL ACHIEVEMENT OF 12TH GRADE NEGRO STUDENTS*
(Expressed in Grade Level Equivalents)

Individual's parents' education (social class of students)	School average: Parents' education (social class level of school)	Teacher average: Index	Proportion white classmates: Less than half I	Proportion white classmates: More than half II
Less than high school (low)	(A) Less than high school graduate (low)	(1) Low	7.3	8.5
		(2) High	7.7	8.6
	(B) High school graduate (medium to high)	(1) Low	7.8	9.5
		(2) High	8.6	9.5

* By school social class, teacher quality, and racial composition of classroom, Metropolitan Northeast.

Source: Reproduction of Table 5 in Racial Isolation in the Public Schools, Vol. 1, U.S. Commission on Civil Rights, p. 98

3. The percentage of teachers in the school desiring to continue teaching in the current school (motivation).

4. The average years of teaching experience.

Finally, the 12th grade Negro students were divided into those attending schools where the proportion of white classmates was either less than half (left column) and those where the proportion was greater than half (right column).

The figures in the table show the average verbal achievement in grade level equivalent scores. Reading down the scores in the pair of columns indicates the effect of teacher quality. Teacher quality makes little difference when more than half of the classmates are white (right-hand column). Teacher quality appears to add between 0.4 and 0.8 years of achievement when fewer than half of the classmates are white.

The influence of the school's social class on achievement is suggested by comparing lines A1 and A2 with lines B1 and B2. The school's social class is related to greater differences in achievement than teacher quality. In schools where the parent's education is high school graduate or more, average home expectations for the students are presumably high. Negro students attending such schools respond by showing between 0.5 and 1.0 years

grade level higher achievement than do the same kind of Negro students in schools of lower average parental education.

Finally, the relationship of racial composition of the class to Negro student achievement can be traced by comparing entries in the last two columns. Holding constant both teacher quality and social class of the school, achievement differences of between 0.9 and 1.7 grade level equivalents are related to the sole influence of racial composition.

In summary, larger variations in achievement of disadvantaged Negro students are associated with the racial composition of the classroom they attend than with any other factor.

Factors Related to Achievement of White Students

Since achievement is higher among disadvantaged Negro students who attend integrated classes, it is now necessary to ask what relation exists for white students between achievement and racial composition of schools. Table 2 reproduces Table 8.6* of the report of the U.S. Commission on Civil Rights, which supplies data on this question, also drawn from the USOE survey. This table reports raw scores rather than grade level equivalents. By reading across a line one can trace the relation between racial composition and achievement, while holding constant factors of student background and social class of school (average of parents' education). Achievements are slightly higher as the proportion of white increases. It makes little difference whether one uses a proportion of "less than half white" or "about half white" as the integrated cases. Similarly, the segregated white case is little affected by whether one uses the proportion "more than half white" or "all white." In fact, some achievements for "all white" are lower than for schools partly integrated.

The significant conclusion that can be drawn from this table is that white student achievement is related only very slightly to racial composition of the classroom.

Policy Implications of Findings on Achievement

The foregoing analyses dealt with the relationship between achievement and educational conditions for Negro and white students separately.

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* Unfortunately, neither the Commission report nor the USOE survey contains a table that corresponds exactly to the foregoing one on 12th grade Negroes. The table for white students does not control for teacher quality. Elsewhere in the USOE report it was found that achievement of white students appears relatively insensitive to measurable difference in teacher quality, whereas achievements of minority students are moderately sensitive. Therefore, the omission of teacher quality does not interfere with comparability of the two tables.

Table 2

ACHIEVEMENT OF 12th GRADE WHITE STUDENTS*
(Expressed in Raw Scores)

Parents' Education	School Average: Parents' Education	Proportion White Classmates Last Year: Less Than Half--I	About Half--II	More than Half--III	All--IV
Less than high school graduate	Less than high school graduate	275.71 (452)†	278.69 (559)	282.30 (1,799)	281.50 (1,275)
	High school graduate or more	283.70 (188)	282.89 (267)	286.82 (1,210)	287.01 (1,119)
High school graduate	Less than high school graduate	278.67 (303)	280.10 (396)	286.09 (1,354)	284.94 (778)
	High school graduate or more	287.62 (289)	284.60 (314)	291.84 (2,039)	292.15 (2,039)
At least some college	Less than high school graduate	289.39 (41)	288.07 (45)	293.37 (231)	290.96 (109)
	High school graduate or more	297.11 (116)	290.92 (85)	298.86 (842)	299.72 (962)

* By parents' education, average of parents' education of students in the school, and proportion white classmates; Metropolitan Northeast.

† Numbers in parentheses refer to the number of students in each subsample.

Source: Table 8.6 from Racial Isolation in the Public Schools, Vol. 2, Appendices, U.S. Commission on Civil Rights, p. 137.

Achievement differences for Negro and white students were compared under the following conditions:

1. The social class of the student himself, as measured by his parents' education.

2. The racial composition of the school, as measured by whether more or fewer than half of the individual student's classmates were white.

3. The social class of the school, as measured by the average education of all parents of the school.

The School Board and administration can do little if anything about the social class of the student. The education of the student's parents is largely predetermined by the time the child enters shcool.

The School Board and administration can have some influence on the second and third conditions mentioned, namely racial composition and the average social class of the school. The Board could consider those attendance rules that will distribute students so as to give as many schools and classes as possible the conditions that are correlated with higher achievement.

Achievement Differentials and Associated Educational Conditions

Table 3 has been calculated from average achievement test scores collected in the Coleman survey. The method of calculating Table 1 is given in a working paper contained in Appendix B. The table reports achievement differentials in raw scores. Thus it shows the differences in achievement associated with a change in a single educational condition while all other factors are held constant. The three educational conditions being varied are shown in lines 1.0, 2.0, and 3.0. The subgroup description shows the variables that are being controlled. The entries for Negro and white students show the differentials applying to each of the educational conditions for each subgroup.

In the table, the more significant differentials are indicated by the entries lying within the boxed areas. A differential raw score of +7.5 corresponds approximately to one grade level equivalent. Only differentials exceeding this amount are boxed.

Table 3 shows that family background of the student is correlated with large performance differentials among white students (lines 1.1 to 1.4). In fact, the four largest entries in the column for white students are traceable to this condition. Family background also is associated with performance differentials for Negroes (lines 1.1 to 1.4), but to less a degree than for white students.

The second educational condition is that of comparing students who attend a school of fewer than half white classmates with students attending

Table 3

ACHIEVEMENT DIFFERENTIALS AND ASSOCIATED EDUCATIONAL CONDITIONS
12th Grade Negro and White Students in Metropolitan Northeast

Variable Condition and Subgroup Description	Raw Score Differential in Average Verbal Achievement Scores: Negro	White
1.0 The individual student's parents have some college education instead of less than high school education:		
1.1 School low social class; less than 1/2 of white classmates	+2.6	+13.7
1.2 School high social class; less than 1/2 of white classmates	+6.7	+13.4
1.3 School high social class; more than 1/2 of white classmates	+8.7	+12.1
1.4 School low social class; more than 1/2 of white classmates	+8.0	+11.1
2.0 The student attends a school where more than 1/2 of his classmates are white instead of less than 1/2 are white:		
2.1 Parent high social class; school low social class	+12.8	+4.0
2.2 Parent high social class; school high social class	+11.1	+1.8
2.3 Parent low social class; school high social class	+9.1	+3.1
2.4 Parent low social class; school low social class	+7.4	+6.6
3.0 The student attends a school where all parents' average education is high school or more instead of less than high school:		
3.1 Parent low social class; less than 1/2 of classmates white	+3.5	+8.0
3.2 Parent high social class; less than 1/2 of classmates white	+7.6	+7.7
3.3 Parent high social class; more than 1/2 of classmates white	+5.9	+5.4
3.4 Parent low social class; more than 1/2 of classmates white	+5.2	+4.5

Note: Entries lying within boxed area probably indicate the significant differences since they exceed one grade level equivalent.

Source: See working paper, Appendix A.

schools having more than half white classmates. Three entries above +7.5 (lines 2.1 to 2.3) show that for Negro students, the differential associated with this condition of racial composition is great. No achievement differential for white students reaches the +7.5 value, indicating racial composition has little relationship with achievement for the white students.

The third condition examined was the social class of the school, as measured by whether all parents' education averages high school graduate or more instead of less than high school. This condition is associated with two relatively significant differentials for white students (lines 3.1 and 3.2) and with one differential for Negro students (line 3.2), in all cases when the classroom had fewer than one half white students.

The evidence thus suggests that effects are asymmetrical. The Negro student's achievement is strongly correlated with racial composition of the classroom; the white student's achievement is primarily influenced by his own home background and is largely unrelated to the racial composition of the classroom.

Confirmation in Case Studies

Corroborating evidence to support the favorable influence that desegregation has on achievement is to be found in several case studies. The Commission reports on a study conducted by the Syracuse public schools:

> Negro students participating in the same compensatory program in majority-Negro elementary schools were matched with similarly situated Negro children bused to majority-white schools which had no compensatory education program. The Syracuse study found that over the course of a school year, the bused students achieved at a rate more than double that of the achievement rate of the students in the compensatory program. The Syracuse school superintendent discussed the findings at the Rochester hearing: 'The 24 children who were bused . . . achieved . . . a total of 9.2 months' progress in reading (in one school year) while their matched counterparts (in the predominantly Negro school) . . . did but 4 months.'*

Similar conclusions were found in a Seattle study in the same report:

> To reduce class size at two majority-Negro schools in 1965-66, 242 children, most of whom were Negroes, in grades 1 through 6 were transferred from these schools to four nearly all-white schools. Children remaining in the majority-Negro schools received the benefits of intensive compensatory education and

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* See Racial Isolation in the Public Schools, Vol. 1, U.S. Commission on Civil Rights, 1967, p. 129.

reduced class size. The transferred group attended schools with larger class sizes and no special compensatory programs. Seventeen of the 38 transferred first-grade students were compared with a control of 25 first graders who remained at the majority-Negro schools. Each group was tested at the beginning of the first and at the beginning of the second grade. Reading test scores revealed that the transferred group had achieved slightly more during the year than had the group receiving compensatory education.*

The Commission cites case studies for Berkeley and Philadelphia where evaluations of control and experimental groups of Negro students were systematically done. In these cases, too, the Negro students who left their classmates to attend desegregated schools achieved more than a matched group that stayed in the all-Negro school. And this was despite the fact that in most cases those staying in the all-Negro school participated in more complete compensatory programs than the bused students did in their new receiving schools.

Operational Guidelines

As was pointed out earlier, the Board and administration have some latitude in which to influence a school's racial or socioeconomic composition.† Attendance policies can be shaped to prevent racial isolation. They can also be shaped to prevent isolation by socioeconomic class--the factor Coleman measured by average parents' education.

Another operational guide emerges from these analyses. Table 1 for 12th grade Negro students showed that teacher quality is related to moderate achievement differentials, particularly in schools of less than half white. Achievement differentials for Negroes in predominantly white schools are less sensitive to teacher quality. Also the Coleman data show that achievement differentials for white students seem insensitive to teacher quality, at least within the restricted range of teacher quality found in the sample.

This finding suggests the following guidelines‡ if the objective is to obtain the maximum achievement of all students:

1. Adopt attendance policies that are as effective as possible in creating favorable educational conditions of socioeconomic balance and racial balance.

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* See U.S. Commission on Civil Rights report, Vol. 1, op. cit., pp. 131-132.

† Condition 2.0 and 3.0 of Table 3.

‡ These are not intended to be comprehensive. Clearly, compensatory education and many other programs must accompany them.

2. Where imbalance remains after best efforts in step 1, assign the highest quality teachers to schools enrolling a large proportion of minority students who come from families with average low education. Of course, the teachers so selected would have to be those with appropriate training and motivation.

This program for teacher assignment may well run counter to majority middle class perceptions. There needs to be public discussion and consensus on the challenges to traditional practices presented by these Coleman findings. Coleman's summary* is as follows:

> This analysis of achievement test results indicates the ecology of educational disadvantage experienced by particular minority groups in the United States. A cautionary word must again be added: These are not the only results of schooling, but simply the most tangible ones, and the ones increasingly important for success in our society. Partial and incomplete though these results may be, they show in stark outline the differential skills with which different racial and ehtnic--as well as regional--groups are equipped at the end of public schooling.
>
> Obviously, a large part of this disadvantage arises from the background cultures from which these groups came. A Negro in the rural South lives in a cultural world for which the skills taught in schools appear to be largely irrelevant. As he grows up, these skills will become relevant, particularly if he is to move into the larger society.
>
> Another part of the educational disadvantage derives directly from the kind of schooling to which he is exposed. By failing to provide him with the same opportunities as those provided by other schools, the school he attends presents him with an immediate disadvantage. Beyond this, if his school does not attempt or fails in the attempt to compensate for the cultural disadvantages with which he begins school, he can expect to start his adult life with the handicap given him by the culture in which he resides, compounded by the missed opportunities in schooling that this handicap has caused.

Limitation of Cross-Sectional Analyses

A major caveat must be observed in interpreting the findings from the Coleman report: namely that the study used cross-sectional, not longitudinal, analyses. This means that data analyzed were those collected for only one cross-section in time and not by following individual

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* See Coleman, op. cit., pp. 273, 275.

students through time. The Coleman team had no other option in this case, because longitudinal data of the depth required did not exist.*

In cross-sectional analysis, samples of students that are independent of one another are compared. They are compared according to many attributes, including achievement, and a variety of educational conditions. In making inferences from such analyses, great caution must be exercised in making the leap from strong correlations and associations on the one hand to "explanations" and "causations" on the other hand. The Coleman report authors are fully aware of this caveat. They say in part:

> Even if association of the variables we are studying with some 'explanatory' variable is firmly established, this establishment cannot of itself settle the question of causation (though strong evidence would be provided if the time order were known); either variable may 'cause' the other, or both may share a common cause. In many cases, continuing studies of the development of these variables over time can untangle such a question of 'What causes what?' In the present case, studies of change in achievement level could give more direct evidence than the present cross-sectional survey.†

The educational decision-maker does not always have the luxury of a five- to ten-year span in which to gather longitudinal data on experimental and control groups.‡ He must apply the evidence at hand to the issues of the day. On balance, it would appear that the correlational evidence of the Coleman survey is probably sufficiently persuasive to justify the conclusions stated in the previous section.

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* The requirement for evaluation of the effects of ESEA expenditures will probably mean that within the next decade important longitudinal data will become available.

† See Coleman, op. cit., p. 326.

‡ A seven-year longitudinal study of comprehensive design has been proposed by the University of California, Riverside, for the Riverside Unified School District. The study would concern 1,800 students, half of them minority and half of them white.

Appendix A

DEFINITIONS

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For purposes of this and subsequent memoranda, terms are defined as follows:

1. Preschool: Prekindergarten and kindergarten classes in public schools.

2. Primary school: Classes in public schools grade one through three. In a few exceptions caused by school capacity imbalances, a "primary school" may be either grades one and two or grades one through four.

3. Intermediate school: Grades four through six. In a few exceptions caused by school capacity imbalances, an "intermediate school" may be either grades three through six or grades five and six.

4. Elementary school: Grades K through six.

5. Middle school: Grades five through eight.

6. Junior high school: Grades seven through nine.

7. Senior high school: Grades ten through twelve.

8. High school: Grades nine through twelve.

9. Secondary schools: Grades seven through twelve.

10. Nongraded school: An elementary school using a flexible system designed to help each student work at his optimal level of readiness in each field of endeavor. The educational experiences are arranged so that the student is not separated from his natural peers (his own age group). Various achievement levels (perhaps ten to twenty) in each subject replace grade distinctions. The student works at his own pace through these levels. Generally, team teaching is integrated with nongrading to provide specialized teaching competence and to handle the various student groupings necessary for effectiveness of nongraded systems.

11. Feeder attendance rules: All graduates of a specified school always attend a specified school in the next level. For example, a feeder rule might state that all graduates of the Giannini

Junior High School and of the Pelton Junior High School will attend the Abraham Lincoln Senior High School, which will be fed only by these two junior high schools.

12. Unified district or subdistrict: Grades K through 12 under one educational administration.

13. Educational complex: A subsystem of schools closely related to one another through a greater pooling than generally occurs in conventional practice of specialized services, such as guidance counselors, special teachers.

14. Educational park: Similar to the complex, the park would contain several schools or complexes on a single large campus. Parks have generally been advocated as a means of serving an area large enough to achieve desegregation.

Appendix B

AVERAGE VERBAL ACHIEVEMENT SCORES

Appendix B

AVERAGE VERBAL ACHIEVEMENT SCORES*
(Raw Scores)

Social Class of Student (parents' education)	Social Class of School (parents' average education)	12th Grade Negro					12th Grade White				
		Less Than 1/2 White		More Than 1/2 White		Differences in Score	Less Than 1/2 White		More Than 1/2 White		Differences in Score
		Score	N†	Score	N		Score	N	Score	N	
Less than high school	Less than high school 1	265.6	393	273.3	225						
		268.1	184	274.4	160						
		266.4	577	273.8	385	+7.4	275.7	452	282.3	17,999	+6.6
	More than high school 2	268.6	67	278.9	79						
		274.0	175	279.0	135						
		269.9	242	279.0	214	+9.1	283.7	188	286.8	1,210	+3.1
	Difference (2-1)	+3.5		+5.2			+8.0		+4.5		
At least some college	Less than high school 3	266.8	56	277.4	71						
		271.2	63	284.4	41						
		269.0	119	281.8	112	+12.8	289.4	41	293.4	231	+4.0
	More than high school 4	274.8	32	287.0	46						
		284.9	154	289.4	109						
		276.6	186	287.7	155	+11.1	297.1	116	298.9	842	+1.8
	Difference (4-3)	+7.6		+5.9			+7.7		+5.4		
Difference (3-1)		+2.6		+8.0			+13.7		+11.1		
Difference (4-2)		+6.7		+8.7			+13.4		+12.1		

* Metropolitan Northeast.
† N = number of students in sample.

Source: U.S. Commission on Civil Rights, Racial Isolation in the Public Schools, Appendix Tables 7.16 and 8.6.